

ATTACHMENT

BACKGROUND INFORMATION AND KEY QUESTIONS

Natural Gas Modeling Approach, Methodology and Tools Docket 04-IEP-01 –D. Electricity and Natural Gas Forecast and Options

Thursday, December 16, 2004

Background

A core part of the Energy Commission's natural gas analyses involves the use of models and spreadsheets to evaluate future natural gas market conditions and develop policy recommendations. While the Energy Commission staff has conducted this work for many years, analytical approaches and tools should be periodically evaluated to ensure they are effective.

The Committee would like to use this workshop as an opportunity to inform the public of the natural gas modeling methodologies that will be used by the Energy Commission staff for the *2005 Energy Report*. While staff has already begun the modeling work for the *2005 Energy Report*, comments at this workshop can provide a basis for minor adjustments now and more significant changes in the overall approach for future Energy Reports.

For the *2005 Energy Report*, the Committee is seeking input on the following key questions relating to the natural gas market analysis are:

1. General Modeling Questions

- a. What are the market characteristics to be included in the short-term and long-term modeling exercises?
- b. What are the major issues to be addressed in modeling the infrastructure, supply, and price trends?
- c. How should a base case or a reference case be used in the market analysis?
- d. How should the scenarios and sensitivities be designed to capture current and future market issues? Are there alternative approaches?

2. Pricing Issues

- a. What is the best methodological approach for developing a reasonable forecast?
- b. How should these approaches best be modeled?
- c. Should the model forecast a "market fundamental" price, or focus on a spot or forward market price?
- d. What is the relationship between futures projections, spot prices, and prices projected by modeling exercises? What are the factors to be reconciled with such analytical procedures?

3. Demand Projections

- a. What are the issues to be considered in analyzing demand trends and projections?
- b. What is the desired way to approach demand assumptions? How should the elasticity be estimated? To what level should competition and switching of natural gas with other fuels be considered in long-term and short-term analysis?
- c. How should fuel switching issues be addressed in our analysis?

4. Supply Analysis

- a. What are the approaches to developing the “cost curves” for natural gas supplies and how they should be developed?
- b. What limitations are encountered by using any of these approaches?

5. Miscellaneous Issues:

- a. Is there any modeling issue not included in the above list?
- b. Should (and if so, how should) the natural gas market analysis include modeling of criteria and/or non-criteria air emissions?
- c. How should the natural gas analysis be integrated with other energy sector analysis?
- d. If the Energy Commission does not rely on an internal forecast, which other forecast should it rely upon?

In addition, the Committee is seeking input to the following questions for future Energy Reports:

- How should the Energy Commission conduct long-term analyses? Should it continue using its current methodology or initiate modifications for the coming years?
- How should the Energy Commission build its short-term analytical capability to support future work, and

What alternative modeling tools are available for short- and long-term analyses?